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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Marc Husemann

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EXAMINER

DESAI, ANISH P

ART UNIT

PAPER NUMBER

1794

MAIL DATE

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/533,831	<b>Applicant(s)</b> HUSEMANN ET AL.	
	<b>Examiner</b> ANISH DESAI	<b>Art Unit</b> 1794	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 30 March 2009.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1 and 3-18 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1 and 3-18 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

***DETAILED ACTION***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed on 03/18/09 after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 03/18/09 has been entered.
2. Objection to claim 4 is withdrawn in view of applicant's amendment and response.
3. 35 USC Section 102(b) rejections based on Buccellato et al. (WO 9824978A) wherein US 6,861,141B2 is relied upon an equivalent document is withdrawn in view of applicant's amendment and response. Buccellato does not teach Tg of the PSA as claimed.
4. Similarly, 35 USC Section 102(b) rejections based on Bennett et al. (WO 95/13328) in view of McLaughlin et al. (US 6,365,791B1) are withdrawn in view of applicant's amendment and response.
5. In view of applicant's amendment, a new 35 USC Section 112- first and second paragraph rejections are made.
6. A new 35 USC Section 103(a) rejection based on Maruoka et al. (US 5,252,395) in view of Spada et al. (US 6,239,037 B1) and McLaughlin et al. (US 6,365,793B1) is made.

### ***International Search Report***

7. Applicant has provided the international search report (ISR) citing following documents as "X" reference: EP 1888802A, Patent Abstract of Japan JP 01-315409A, EP 1097978A, WO 95/13328A, and WO 98/24978A. The Examiner has reviewed the aforementioned references but not agreed with the citation of the ISR because the aforementioned references do not teach "the pressure sensitive adhesive has a glass transition temperature...and has a bond strength..." as presently claimed.

### ***Specification***

8. The disclosure is objected to because of the following informalities: on page 4 line 35 applicant has cited Fox equation to calculate the glass transition temperature of a polymer. Additionally, applicant states "Wn the mass fraction of the respective monomer n (***in % by weight***)". It is noted that Fox equation cited by applicant to calculate Tg requires mass ***fraction*** (Wn) of the monomer. As such, the Examiner suggests deletion of "in % by weight" as recited on page 4 line 37 of the specification.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

9. Claims 1 and 3-18 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

10. With respect to claim 1 limitation "pressure sensitive adhesive has a glass transition temperature...greater than or equal to 30°C", the Examiner submits that while there is the support to recite that the **polymer** has a glass transition temperature of greater than or equal to 30°C, there is no support to recite that the PSA has said glass transition temperature, because claim language includes "comprising" which means that the PSA includes said polymer and other ingredients.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

11. Claims 1 and 3-18 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

12. It is noted that claim 1 recites monomer represented by formula (a), which encompasses monomers such as 2-ethylhexyl acrylate. Additionally, specification recites "In order to obtain a polymer glass transition temperature  $T_{g,A}$  of  $\geq 30^{\circ}\text{C}$ , in

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accordance with above remarks, the monomers are very favorably selected...to give the desired  $T_{g,A}$  value for the polymer..." (page 4 lines 29-34 of the specification).

13. The Examiner submits that not all of the monomers encompassed by the formula (a) in combination with isobornyl acrylate as claimed will yield  $T_g$  of greater than or equal to  $30^\circ\text{C}$ . For example, applicant's specification Example 1 uses (A) 8 g of acrylic acid ( $T_g = 105^\circ\text{C}$  or 378.15K), (B) 272 g of 2-ethylhexyl acrylate ( $T_g = -50^\circ\text{C}$  or 223.15K), and (C) 120 g of isobornyl acrylate ( $T_g = 94^\circ\text{C}$  or 367.15K). The weight% of the each monomer based on the total amount of mixture containing (A), (B), and (C) is 2% of acrylic acid, 68% of 2-ethylhexyl acrylate and 30% of isobornyl acrylate. Note:  $T_g$  values of individual monomer (or homopolymer of a monomer) is obtained from the attached reference sheet titled "Reference: Polymer Properties" by Aldrich. **It is further noted that weight% of these monomers are within the claimed range.** Using the Fox equation provided by applicant in the specification,  $T_g$  of the polymer formed from the aforementioned monomer is  $-18^\circ\text{C}$  (calculated as  $1/T_g$  (of polymer) =  $(0.02/378.15\text{K}) + (0.68/223.15\text{K}) + (0.3/367.15\text{K})$ , which equates to  $T_g$  of 255 K or  $-18^\circ\text{C}$ ).

14. Based on this, claim is ambiguous because it is not clear as to whether the  $T_g$  as claimed is of a polymer or the entire PSA which includes polymer and other intergradient since claim language is open to presence of other intergradient. Additionally, if  $T_g$  is of the polymer then it appears that not all monomers (claimed by formula (a)) in combination with isobornyl acrylate will yield  $T_g$  of greater than or equal to  $30^\circ\text{C}$ .

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15. Further with respect to claim 1 recitation of "bond strength of ...", it is noted that applicant has generally recited the bond strength of the adhesive without setting forth a specific substrate to which the bond strength is measured, because different substrate will give rise to different bond strength. Specification discloses that the bond strength was measured on steel. Additionally, it is not clear as to what is meant by the aforementioned recitation.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

16. Claims 1, 3, 4, 6, 7, 9, 11, 12, 17, and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Maruoka et al. (US 5,252,395) in view of Spada et al. (US 6,293,037 B1) and McLaughlin et al. (US 6,365,793B1).

17. With respect to claim 1, Maruoka discloses a pressure sensitive adhesive sheet comprising a substrate and a layer of pressure sensitive adhesive composition coated on the substrate (abstract). The PSA of Maruoka is formed of copolymer comprising (A) 30 to 93 weight percent of monomeric unit of acrylic ester, wherein acrylic ester is an ester of acrylic acid or methacrylic acid with an alcohol having 1 to 14 carbon atoms

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(equated to read on applicant's monomer (a) as claimed) such as n-butyl acrylate and 2-ethylhexyl acrylate (column 3 lines 35-40 and column 5 lines 5-20), (B) a polar acrylic monomer, and (C) a high T<sub>g</sub> macromonomer having T<sub>g</sub> of 20°C or more (column 5 lines 40-65). Additionally, Maruoka discloses that the **copolymer of his invention has T<sub>g</sub>** in the range of -60°C to **60°C** (column 8 lines 50-55), which meets claim requirement of PSA having T<sub>g</sub> of greater than or equal to 30°C.

18. As high T<sub>g</sub> macromonomer (C), Maruoka discloses list of monomers including **isobornyl acrylate** (see column 5 line 59). However, Maruoka is silent as to specifically using isobornyl acrylate

19. However, Spada discloses acrylic PSA tape that comprises 9 to 40% by weight of isobornyl acrylate and 50 to 91% by weight of one or more of alkyl acrylate (abstract). Further, at column 3 lines 15-25, Maruoka discloses isobornyl acrylate (IBOA) is a high boiling, low odor, low toxicity monomer and preferred PSAs are made using between about 20 to 30% by weight of IBOA, based on the total weight of the monomers. Additionally, Spada discloses that IBOA forms a homopolymer having a high glass transition temperature (T<sub>g</sub> = 94°C) (column 3 lines 15-25).

20. The aforementioned disclosure of Spada is interpreted to meet applicant's claim requirement of 10 to 40% by weight of isobornyl acrylate unit (claim 1) and 15 to 40% by weight of component (b) (i.e. isobornyl acrylate) (claim 11) as claimed.



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21. Maruoka desires a high Tg monomer (Tg of greater than 20°C) that is used in acrylic copolymer of his/her invention which also includes isobornyl acrylate as one of the possible monomers. Spada discloses monomer such as isobornyl acrylate that has low odor and low toxicity and whose homopolymer has high Tg.

22. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use the isobornyl acrylate in the amount as taught by Spada and used it in the invention of Maruoka, because isobornyl acrylate has low odor and low toxicity, and high Tg, which is desirable by Maruoka.

23. With respect to claim limitation of thermal crosslinkers, Maruoka at column 10 lines 33-34 discloses "Agents to crosslink the adhesive composition may also be added to the composition according to desire". However, Maruoka is silent as to teaching **thermal** crosslinkers. Additionally, Maruoka is silent as to teaching metal chelates as thermal crosslinkers (claims 17 and 18).

24. However, McLaughlin discloses a PSA tape. Further, at column 7 lines 5-10, McLaughlin discloses a thermally crosslinked acrylic adhesive that includes metal chelate as crosslinker.

25. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to add thermal crosslikers such as metal chelate as

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taught by McLaughlin in the acrylic PSA of Maruoka as modified by Spada, motivated by the desire to provide PSA with suitable cohesiveness, and Maruoka desires crosslinkers.

26. With respect to the claimed property of PSA having bond strength, it is submitted that the PSAs of Maruoka as modified by Spada and McLaughlin and applicant comprise polymer formed of monomers (a) and (b) and thermal crosslinkers. Based on this, the PSAs of Maruoka as modified by Spada and McLaughlin and applicant is structurally and compositionally equivalent. Thus the aforementioned property would necessarily be present in the PSA of Maruoka as modified by Spada and McLaughlin.

27. With respect to claim 3, at column 5 lines 25-40, Maruoka discloses polar acrylic monomer (B) in the amount of 1 to 30 weight percent (column 3 lines 35-40) such as 2-hydroxyethyl (meth)acrylate, glycidyl (meth)acrylate etc. which read on claim 3.

28. With respect to claims 4 and 12, as previously noted PSA of Maruoka is formed of copolymer comprising (A) 30 to 93 weight percent of monomeric unit of acrylic ester, wherein acrylic ester is an ester of acrylic acid or methacrylic acid with an alcohol having 1 to 14 carbon atoms (column 5 lines 5-20), which meets said claims.

29. Regarding claim 6, Maruoka discloses that "Agents to prevent degradation such as ultraviolet absorbents and antioxidants may be added to the adhesive composition"

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(column 10 lines 30-35), which is interpreted to read on fillers and aging inhibitors of claim 6.

30. Regarding claims 7 and 9, Maruoka discloses an adhesive, wherein the adhesive is applied to substrates such as PVC, PE, PP, non-woven fabric, and woven fabric (column 10 lines 35-40).

31. Claims 8 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Maruoka et al. (US 5,252,395) in view of Spada et al. (US 6,239,037 B1) and McLaughlin et al. (US 6,365,793B1) as applied to claims 1 and 7 above, and further in view of Massow et al. (US 5,194,455).

32. Maruoka as modified by Spada and McLaughlin is silent as to teaching claims 8 and 16.

33. However, Massow discloses acrylate based hot melt adhesive. Additionally, at column 6 lines 30-40, Massow discloses that the thickness of the adhesive layer, depending on the intended use is between 5 to 1500  $\mu\text{m}$ .

34. It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide the PSA layer of Maruoka with the thickness as taught by Massow, motivated by the desire to form a PSA tape that has a suitable thickness so that it can be applied to the intended substrates.

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35. Claims 5 and 13-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Maruoka et al. (US 5,252,395) in view of Spada et al. (US 6,239,037 B1) and McLaughlin et al. (US 6,365,793B1) as applied to claim 1 above, and further in view of Khieu et al. (WO 98/24978).

36. Maruoka as modified by Spada and McLaughlin is silent as to teaching claims 5, and 13-15.

37. However, Khieu discloses that PSAs have been used in durable pavement marking tapes (page 1 lines 20-25). With respect to claims 5, 14, and 15, Khieu discloses that PSA of his invention contains tackifiers in the amount ranging from 10 to 60% by weight in order to provide adhesive the necessary forming and bond maintenance properties (page 8 lines 10-25). Additionally, at page 5 lines 10-15, Khieu discloses PSA comprising about 10 to 25% by weight tackifier. Further, at page 9 lines 4-7, Khieu discloses compatible tackifiers (see "The resin may be hydrogenated if desired for improved stability and/or **compatibility**"). Alternatively, since Khieu discloses using hydrocarbon resin tackifiers (page 8 line 14) which are the same as those used in the present invention, the tackifiers would therefore intrinsically be compatible with the polymer of Maruoka modified by Spada which is identical to the polymer presently claimed.

38. Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to add the tackifiers of Khieu in the amount taught by Khieu in the adhesive of Maruoka as modified by Spada and McLaughlin, motivated by

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the desire to provide the adhesive with necessary bond maintaining property and tackiness.

39. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Maruoka et al. (US 5,252,395) in view of Spada et al. (US 6,239,037 B1) and McLaughlin et al. (US 6,365,793B1) as applied to claims 1 and 7 above, and further in view of Everaerts et al. (US 5,612,136).

40. Maruoka is silent as to teaching claim 10.

41. However, Everaerts discloses a method of bonding PSA tape to acid-resistant automotive paints (abstract), which is interpreted to read on applicant's method of bonding an adhesive tape to automotive finishes.

42. While Maruoka does not explicitly teach aforementioned method, it is noted that Maruoka's adhesive tape is excellent in blister resistance, adhesive strength, and it is removable (see column 2 lines 65-67 to column 3 lines 1-5). Additionally, at column 1 lines 28-31, Maruoka discloses that PSA sheets can be applied to substrates such as metals, plastics etc.

43. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use the adhesive tape of Maruoka in the method of bonding an adhesive tape to automotive finishes, motivated by the desire to use the adhesive tape having excellent adhesiveness and removability.

***Response to Arguments***

44. Applicant's arguments received on 03/30/09 have been considered but are moot in view of the new ground(s) of rejection.

***Conclusion***

45. Any inquiry concerning this communication or earlier communications from the examiner should be directed to ANISH DESAI whose telephone number is (571)272-6467. The examiner can normally be reached on Monday-Friday, 8:00AM-4:30PM.

46. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Callie Shosho can be reached on 571-272-1123. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

47. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a

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/A. D./

Examiner, Art Unit 1794

/Callie E. Shosho/

Supervisory Patent Examiner, Art Unit 1794